Claim 4. The plant as claimed in claim 3, wherein the at least one semiconducting layer comprises an inner semiconducting layer is in electrical contact with and at substantially the same potential as the conductor.

Claim 5 has been canceled.

Claim 6. The plant as claimed in claim 1, wherein said at least one semiconducting layer comprises an outer semiconducting layer connected to a selected potential.

Claim 7. The plant as claimed in claim 6, wherein the selected potential is earth potential.

Claim 8. The plant as claimed in claim 3, wherein at least two of said layers form a monolithic structure and have substantially the same coefficient of thermal expansion.

Claim 9. (Amended) The plant as claimed in claim 3, wherein the current carrying conductor comprises a plurality of insulated conductive strands, and a lesser plurality of uninsulated conductive [strands] elements.

Claim 10. (Thrice Amended) The plant as claimed in claim 1, wherein the winding comprises a cable and the [conductive core] conductor includes one or more current-carrying conductors, each conductor including a number of conductive [strands] elements, the at least one semiconducting layer includes an inner semiconducting layer and [outer] an outermost semiconducting layer being arranged around each conductor, and an insulating layer of solid insulation being arranged between the inner semiconducting layer and the [outer] outermost semiconducting layer.

Cancel claim 11.

Claim 12. The plant as claimed in claim 1, wherein the machine has a magnetic circuit including a cooled stator operative at earth potential.

Claim 13. (Thrice Amended) The plant as claimed in claim 1, wherein the electrical machine includes a magnetic circuit [of the electric machine comprises] comprising a stator having a central axis and at least one slot and a stator winding located in the slot, said slot having a number of cylindrical openings each having a central axis parallel with the central axis of the stator and being disposed in the slot radially adjacent each other, each cylindrical opening having a substantially circular cross section and being separated by narrow waist parts therebetween.

Claim 14. The plant as claimed in claim 13, wherein the stator winding has three phases and the phases of said stator winding are Y-connected.

Claim 15. The plant as claimed in claim 14, wherein the stator winding includes a Y-point insulated from earth potential or connected to earth potential via a high-ohmic impedance and protected from over-voltages by means of surge arresters.

Claim 16. The plant as claimed in claim 14, wherein the Y-point of the stator winding is earthed via a suppression filter of third harmonic type, which suppression filter is designed to greatly reduce or eliminate third harmonic currents in the electric machine at the same time as being dimensioned to limit voltages and currents in the event of faults in the plant.

Claim 17. The plant as claimed in claim 16, wherein the suppression filter is protected from over-voltages by means of surge arresters, the latter being connected in parallel with the suppression filter.

Claim 18. The plant as claimed in claim 15, including a high voltage side and wherein the cable has a gradually decreasing insulation seen from the high-voltage side towards the Y-point.

Claim 19. The plant as claimed in claim 18, wherein the gradual decrease in the insulation thickness is stepwise or continuous.

Claim 20. (Thrice Amended) The plant as claimed in claim 13, wherein the machine comprises a generator [has] having a rotor and the stator includes a yoke and the circular cross section of the substantially cylindrical openings for the stator winding has decreasing radius seen from the yoke portion towards the rotor.

Claim 21. (Thrice Amended) The plant as claimed in claim 12, wherein the [electrical] electrical machine comprises a generator [includes] including a rotor.

Claim 22. (Thrice Amended) The plant as claimed in claim 21, wherein the machine is connectable to [can be started from] a local power supply for starting said machine.

Claim 23. (Thrice Amended) The plant as claimed in claim [22] 21, wherein the machine has two or more poles.

Claim 24. The plant as claimed in claim 23, wherein the rotor and the stator are so dimensioned that at nominal voltage, nominal power factor and over-excited operation, the thermally based current limits of stator and rotor are exceeded approximately simultaneously.

Claim 25. The plant as claimed in claim 23, wherein the rotor and the stator are so dimensioned that at nominal voltage, nominal power factor and over-

excited operation, the thermally based stator current limit is exceeded before the thermally based rotor current limit has been exceeded.

Claim 26. The plant as claimed in claim 24, wherein it has 100% overload capacity at nominal voltage, nominal power factor and at over-excited operation.

Claim 27. The plant as claimed in claim 24 wherein the rotor poles are pronounced.

Claim 28. The plant as claimed in claim 27, wherein the quadrature-axis synchronous reactance is considerably less than the direct-axis synchronous reactance.

Claim 29. (Thrice Amended) The plant as claimed in claim 28, wherein the machine is [equipped with excitation systems] includes an excitation system for enabling both positive and negative excitation.

Claim 30. The plant as claimed in claim 3, wherein the cable with solid insulation intended for high voltage have a conductor area of about between 30 and 3000 mm2 and have an outer cable diameter of about between 20 and 250 mm.

Claim 31. The plant as claimed in claim 1, comprising stator and rotor circuits and cooling means therefor in which the coolant is in liquid and/or gaseous form.

Claim 32. The plant as claimed in claim 1, wherein the machine is arranged for connection to several different voltage levels.

Claim 33. The plant as claimed in claim 1, wherein the machine is connected to the power network without any step-up transformer.

Claim 34. The plant as claimed in claim 1, wherein the winding of the machine is arranged for self-regulating field control.

Claim 35. The synchronous compensator plant comprising at least one rotating electric machine having at least one winding, wherein the winding has an insulation system which, as regards its thermal and electrical properties, permits a voltage level in t he machine exceeding 36 kV.

✓ Claim 36 has been canceled.

Claim 37. The rotating electric machine in the form of a synchronous compensator having at least one winding, wherein the winding comprises an insulation system including at least two semiconducting layers, each layer constituting essentially one equipotential surface, with solid insulation disposed therebetween.

✓ Claim 38 has been canceled.

Claim 39. A synchronous compensator plant including a rotating high voltage electric machine comprising a stator; a rotor and a winding, wherein said winding comprises a cable including at least one current-carrying conductor including a plurality of insulated strands and a lesser plurality of uninsulated strands and a magnetically permeable, electric field confining cover surrounding the conductor in electrical contact with the uninsulated strands, said cable forming at least one uninterrupted turn in the corresponding winding of said machine.

Claim 40. The synchronous compensator plant of claim 39, wherein the cover comprises an insulating layer surrounding the conductor and an outer layer surrounding the insulating layer, said outer layer having a conductivity for establishing an equipotential surface around the conductor.

Claim 41. The synchronous compensator plant of claim 29, wherein the cover comprises an inner layer surrounding the conductor and being in electrical contact therewith; an insulating layer surrounding the inner layer and an outer layer surrounding the insulating layer.

Claim 42. The synchronous compensator plant of claim 29, wherein the inner and outer layers have semiconducting properties.

Claim 43. (Twice Amended) The synchronous compensator plant of claim 39, wherein the cover is formed of a plurality of layers including an insulating layer and wherein said plurality of layers are joined together to form a monolithic structure and being substantially [void] free of cracks and defects.

Claim 44. The synchronous compensator plant of claim 39, wherein the cover is in electrical contact with the conductor.

Claim 45. The synchronous compensator plant of claim 44, wherein the layers of the cover have substantially the same temperature coefficient of expansion.

Claim 46. The synchronous compensator plant of claim 39, wherein the machine is operable at 100% overload for two hours.

Claim 47. The synchronous compensator plant of claim39, wherein the cable is operable free of sensible end winding loss.

Claim 48. The synchronous compensator plant of claim 39, wherein the winding is operable free of partial discharge and field control.